

EASTERN MEDITERRANEAN UNIVERSITY

DEPARTMENT OF PHYSICS

COURSE CODE	PHYS101	COURSE LEVEL	First Year
COURSE TITLE	PHYSICS - I	COURSE TYPE	University Core in Physical/Natural Sciences
CREDIT VALUE	(4, 1, 0) 4	ECTS VALUE	6 credits
PREREQUISITES	None	COREQUISITES	MATH151
DURATION OF COURSE	One semester	SEMESTER AND YEAR	Spring 2019-2020

WEBSITE <http://physics.emu.edu.tr> , <http://opencourses.emu.edu.tr/course/view.php?id=81>

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CATALOGUE DESCRIPTION

Physical quantities and units. Vector calculus. Kinematics of motion. Newton's laws of motion and their applications. Work-energy theorem. Impulse and momentum. Rotational kinematics and dynamics. Static equilibrium.

AIMS & OBJECTIVES

- To introduce the fundamental concepts of motion necessary for engineering science and provide essential background for engineering students.
- To provide students with a deeper understanding of fundamental laws and concepts of natural phenomena.
- To improve students' problem-solving skills.
- To strengthen students' creative and systematic thinking capability.

GENERAL LEARNING OUTCOMES (COMPETENCES)

On successful completion of this course, all students will have developed **knowledge** and **understanding** of:

- the concepts, theories, techniques and generalizing principles of classical mechanics;
- the mathematical forms of the laws and physical relationships in classical mechanics and their application in solving problems;
- diagrammatic and graphical representation of physics problems and physical data;
- validation of theory through experiment/observation.

On successful completion of this course, all students will have developed **their skills in**:

- correctly using symbols and units;
- analytically/critically applying the theoretical concepts and methods of mechanics covered in the course, and formulating appropriate equations to solve problems;
- using efficiently and effectively the textbook and other printed/electronic literature relevant to the course;
- performing scripted experiments as a team, analyzing and evaluating the data, and writing lab reports;
- using good scientific English for written and oral communication.

On successful completion of this course, all students will have developed their **appreciation** of, and respect for **values and attitudes** to:

- the discipline of physics as a fundamental branch of science that provides qualitative and quantitative explanations about the physical world;
- being an open-minded, curious, creative and reasoned skeptic;
- being aware of ethical issues in science.

GRADING CRITERIA

A (excellent) ~85% and above	Excellent understanding of the concepts and the principles as demonstrated by correct and accurate knowledge and application of theory/laws in solving problems. Response to problems is clear, legible, concise and accurate. Excellent performance.
B (good) ~70% and above	Better than average understanding of the concepts and the principles as demonstrated by correct and accurate knowledge and application of theory/laws in solving problems but does not have the depth and outstanding quality of an "A". Response to problems is fairly clear, legible, but occasionally contains some inaccuracies. Performance exceeds the minimum requirements.
C (average) ~60 % and above	An average understanding of the concepts and the principles as demonstrated by reasonably correct knowledge and application of theory/laws in solving problems but does not have any depth. Response to problems is reasonably clear, legible, but contains inaccuracies. It reveals a sufficient understanding of the material but lacks depth in understanding and approach/application. Content and form do not go beyond basic expectations and/or display some substantial errors. Acceptable but non-exceptional performance that does not go beyond the minimum requirements.

D (barely sufficient) ~50% and above	Minimal knowledge and barely sufficient understanding of the concepts and the principles as demonstrated by approximately correct application of theory/laws in solving problems. Response to problems is not very clear and is barely legible and contains many inaccuracies. It reveals a minimum (confused) understanding of the material and lacks depth in understanding and approach/application. Content and form do not adequately meet the basic expectations, and/or display significant errors. Performance demonstrates severe problems in one or more areas.
F (fail) Below 50%	Work does not meet the most minimal standards. It reveals no understanding of the material, lack of basic academic skills and knowledge, or completely incomprehensible writing. Performance is not acceptable.
NG nil grade	Not enough information to assign a letter grade. <ol style="list-style-type: none"> Overall Attendance to the classes < 50% will lead automatically to the grade NG. All repeating students who fulfilled the attendance requirement of a course once, i.e., whose previous grade is not NG / W are exempted from the attendance requirement. Laboratory Participation < 3 will lead automatically to the grade NG. Missing any 2 two exams will lead automatically to the grade NG.

METHOD OF ASSESSMENT

30%	Midterm Exam (will be held in the Midterm Exam week 06-17 April) Topics: Chapter 1-6
15%	In-term Exam (will be held together with the Lab exam in 2nd Midterm week to be announced) Topics: Chapter 7-9
10%	Lab Exam (will be held together with the Interim exam in the 2nd Midterm week to be announced) Topics: Theoretical background of Experiments conducted, Analysis of Experimental Data, Experimental Setup
5%	Lab Participation (See Laboratory Schedule below)
40%	Final Exam (will be held in the Final Exam weeks May 27 – June 13, 2020) Topics: All Chapters
%3	Bonus: Attendance (Students with an attendance in the ranges 60%-70% are awarded 1 point, 70%-80% are awarded 2 points, and >80% are awarded 3 points)
%10	Bonus: Web Quizzes via WebAssign (Total of 4 Web Quizzes. No makeup for web quizzes. Best 3 will be counted.) The Web Quiz results will be added to the grade only if the student has passed the course based on the written examinations. After adding the web quiz results at most one Letter Grade can be shifted up.

TOTAL 103+ points

IMPORTANT NOTES

Attendance:

Active participation in lectures is a must for the successful completion of this course. **If a nonrepeating student's total attendance (classes, tutorials, laboratories, and exams) is below 50%, automatically the grade NG will be assigned. The same rule is also valid for repeating students having received a grade NG or W in the previous semester. Repeating students having received a grade D- or F are exempted from the attendance requirement.**

Make-up Exam:

According to the Examinations and Evaluations Regulation of Eastern Mediterranean University by Law students who have not attended any of the Midterm, In-term, or Final exams have to provide a valid excuse for not attending the exam within 3 working days after the exam in order to be granted the right to enter the make-up examination. **For any student missing more than one of the main exams (Midterm, In-term, and Final or the corresponding make-up exam), the grade NG will be assigned.**

Objections:

Graded exam papers will be available for inspection upon request. According to the regulations of the University, any objections or re-grade requests should be made **within a week following the announcement of grades.**

TEXTBOOK (REQUIRED*)

- E-book: Serway-Jewett, Physics for Scientists and Engineers, Technology Update, 9th Edition, CENGAGE Learning

COURSE SCHEDULE	
Week	Chapter(s) to be covered
1 17.02-21.02	Introduction Chapter 1 – Physics and Measurement (Sections 1,2,3,4)
2 24.02-28.02	Chapter 3 – Vectors (Sections 1,2,3,4) Chapter 2 – Motion in One Dimension (Sections 1,2,3,4,5)
3 02.03-06.03	Chapter 2 – Motion in One Dimension (Sections 6,7,8,9) Chapter 4 – Motion in Two Dimensions (Sections 1,2,3)
4 09.03-13.03	Chapter 4 – Motion in Two Dimensions (Sections 4,5)
5 16.03-20.03	Chapter 5 – The Laws of Motion (Sections 1,2,3,4,5,6)
6 23.03-27.03	Chapter 5 – The Laws of Motion (Sections 7,8) Chapter 13.1 – Newton’s Law of Universal Gravitation Chapter 6 – Circular Motion and Other Applications of Newton's Laws (Sections 1,2,3,4)
7 30.03-03.04	Chapter 7 – Energy of a System (Sections 1,2,3,4,5,6,7,8) Chapter 13.5 – Gravitational Potential Energy
8,9 06.04-17.04	Midterm Exam Week
10 20.04-24.04 National Holiday April 23	Chapter 8 – Conservation of Energy (Sections 1,2,3,4,5)
11 27.04-01.05 May Day May 1	Chapter 9 – Linear Momentum and Collisions (Sections 1,2,3,4,5,6,7,9)
12 04.05-08.05	Chapter 10 – Rotation of a Rigid Object About a Fixed Axis (Sections 1,2,3,5,6,7,8,9)
13 11.05-15.05	Chapter 11 – Angular Momentum (Sections 1,2,3,4)
14 18.05-22.05 National Holiday May 19	Chapter 12 – Static Equilibrium and Elasticity (Sections 1,2,3)
15,16,17 27.05-13.06	Final Exam Period

LAB POLICIES

- There will be five lab sessions throughout the semester. These will be scheduled during the time slots of the tutorial sessions. Please refer to the schedule (LAB DATES) which is going to be also announced via Physics Department’s web page for the specific date of each lab session. **Note that students who do not attend at least three lab sessions will automatically get NG.**
- **Repeating students having attended PHYS101 in Fall 2019/20 can be exempted from the Laboratory Participation. In this case all Laboratory participation scores from the fall semester 2019/20 will be transferred to the experiment scores of the spring semester 2019/20.** The repeating students can check their previous lab scores via EMU student portal. A repeating student being satisfied with her/his former Lab score is efficaciously exempted from the Laboratory Participation. If a repeating student wants to improve her/his Lab score she/he will have to attend all lab sessions of PHYS101 in Spring 2019/20.
- **All students must attend the Lab-exam!**

LAB DATES

GROUP	DAY/PERIOD	EXPERIMENT 1	EXPERIMENT 2	EXPERIMENT 3	EXPERIMENT 4	EXPERIMENT 5
01	MON 12:30-14:20	24 FEBRUARY	09 MARCH	23 MARCH	20 APRIL	04 MAY
02	TUE 14:30-16:20	25 FEBRUARY	10 MARCH	24 MARCH	21 APRIL	05 MAY
03	THU 8:30-10:20	27 FEBRUARY	12 MARCH	26 MARCH	30 APRIL	14 MAY
04	MON 12:30-14:20	02 MARCH	16 MARCH	30 MARCH	23 APRIL	11 MAY
05	MON 10:30-12:20	24 FEBRUARY	09 MARCH	23 MARCH	20 APRIL	04 MAY
06	TUE 14:30-16:20	03 MARCH	17 MARCH	31 MARCH	28 APRIL	12 MAY
07	WED 8:30-10:20	26 FEBRUARY	11 MARCH	25 MARCH	22 APRIL	06 MAY
08	TUE 8:30-10:20	25 FEBRUARY	11 MARCH	24 MARCH	21 APRIL	05 MAY
09	FRI 14:30-16:20	28 FEBRUARY	10 MARCH	27 MARCH	24 APRIL	08 MAY
10	THU 12:30-14:20	27 FEBRUARY	13 MARCH	26 MARCH	30 APRIL	14 MAY
11	WED 10:30-12:20	26 FEBRUARY	11 MARCH	25 MARCH	22 APRIL	06 MAY

Check the announcements via department’s web site: physics.emu.edu.tr

ACADEMIC DISHONESTY

Cheating is copying from others or providing information, written or oral, to others. According to university by-laws, cheating is a serious academic dishonesty case punishable with disciplinary action including a letter of official warning and/or suspension from The University for up to one semester. Disciplinary action is recorded in student’s file and may appear in transcripts.

PLEASE KEEP THIS COURSE SYLLABUS FOR REFERENCE AS IT CONTAINS IMPORTANT INFORMATION!